



312 File Number: **SATMOD2018101600078**

Filing Description

Question	Response
Description	ECHOSTAR-15 satellite network.

**Satellite
Information**

Question	Response
Select Orbit Type	GSO
Space Station or Satellite Network Name	ECHOSTAR-15
Estimated Lifetime of Satellite(s) From Date of Launch	15 Years
Will the space station(s) operate on a Common Carrier basis?	No

Operating
Frequency
Bands (2)

Nature of service	Description	Frequency Band (s)	Mode Type
Direct Broadcast Satellite (DBS) Service		12200.0 MHz -12700.0 MHz	Transmit
Fixed-Satellite Service		17300.0 MHz -17800.0 MHz	Receive

**Orbital
Information For
Geostationary
Satellites**

Section	Question	Response
Orbital Longitude Information	Orbital Longitude	62.0 degrees
	Hemisphere of Orbital Longitude	W
Longitudinal Tolerance or East /West Station-Keeping	Toward West	0.05 degrees
	Toward East	0.05 degrees
Inclination Excursion or North /South Station-Keeping Tolerance	Inclination Excursion or North /South Station-Keeping Tolerance	0.07 degrees
Eccentricity	Max. Eccentricity	4.6E-4
Antenna Axis Attitude Accuracy	Roll	0.12 degrees
	Pitch	0.12 degrees
	Yaw	0.12 degrees

Receiving Beams 1:

Question	Response
Beam ID	RX1R
Receive Beam Frequency	17300.0 MHz -17800.0 MHz
Beam Type	Spot
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.12 degrees
Min. Cross-Polar Isolation within Service Area	30.0 dB
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	7.6 dB/K
Min. Saturation Flux Density	-100.4 dBW/m2
Max. Saturation Flux Density	-79.4 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	-2 dB contour

Receiving Beams 2:

Question	Response
Beam ID	RX1L
Receive Beam Frequency	17300.0 MHz -17800.0 MHz
Beam Type	Spot
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.12 degrees

Receiving Beams 3:

Antenna Rotational Error	0.12 degrees
Min. Cross-Polar Isolation within Service Area	30.0 dB
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	7.6 dB/K
Min. Saturation Flux Density	-100.4 dBW/m2
Max. Saturation Flux Density	-79.4 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	-2 dB contour.

Question	Response
Beam ID	RX2R
Receive Beam Frequency	17300.0 MHz -17800.0 MHz
Beam Type	Spot
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.12 degrees
Min. Cross-Polar Isolation within Service Area	30.0 dB
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	7.4 dB/K
Min. Saturation Flux Density	-99.5 dBW/m2
Max. Saturation Flux Density	-78.5 dBW/m2
Co- or Cross Polar Mode	C

Receiving
Beams 4:

Service Area Description	-2 dB contour.
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Question	Response
Beam ID	RX2L
Receive Beam Frequency	17300.0 MHz -17800.0 MHz
Beam Type	Spot
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.12 degrees
Min. Cross-Polar Isolation within Service Area	30.0 dB
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
G/T at Max. Gain Point	7.4 dB/K
Min. Saturation Flux Density	-99.5 dBW/m2
Max. Saturation Flux Density	-78.5 dBW/m2
Co- or Cross Polar Mode	C
Service Area Description	-2 dB contour.

Receiving Channels (32)

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
U08	24.0	17426.06	Feeder Link
U09	24.0	17440.64	Feeder Link
U10	24.0	17455.22	Feeder Link
U11	24.0	17469.8	Feeder Link
U12	24.0	17484.38	Feeder Link
U13	24.0	17498.96	Feeder Link
U14	24.0	17513.54	Feeder Link
U15	24.0	17528.12	Feeder Link
U16	24.0	17542.7	Feeder Link
U06	24.0	17396.9	Feeder Link
U05	24.0	17382.32	Feeder Link
U04	24.0	17367.74	Feeder Link
U03	24.0	17353.16	Feeder Link
U02	24.0	17338.58	Feeder Link
U01	24.0	17324.0	Feeder Link
U17	24.0	17557.28	Feeder Link
U32	24.0	17775.98	Feeder Link
U31	24.0	17761.4	Feeder Link
U30	24.0	17746.82	Feeder Link
U29	24.0	17732.24	Feeder Link
U28	24.0	17717.66	Feeder Link
U27	24.0	17703.08	Feeder Link
U26	24.0	17688.5	Feeder Link
U25	24.0	17673.92	Feeder Link

U24	24.0	17659.34	Feeder Link
U23	24.0	17644.76	Feeder Link
U22	24.0	17630.18	Feeder Link
U21	24.0	17615.6	Feeder Link
U20	24.0	17601.02	Feeder Link
U19	24.0	17586.44	Feeder Link
U18	24.0	17571.86	Feeder Link
U07	24.0	17411.48	Feeder Link

Transmitting
Beams 1:

Question	Response
Beam ID	TX1R
Transmit Beam Frequency	12200.0 MHz -12700.0 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.12 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-15.7 dBW/Hz
Max. Transmit EIRP	58.1 dBW
Co- or Cross Polar Mode	C
Service Area Description	CONUS and Puerto Rico

Max. Power Flux Density

	* 0° - 5°	* 5° - 10°	* 10° - 15°	* 15° - 20°	* 20° - 25°	* 25° - 90°
	(dBW/m ²	(dBW/m ²	(dBW/m ²	(dBW/m ²	(dBW/m ²	(dBW/m ²
* BW:	/BW):	/BW):	/BW):	/BW):	/BW):	/BW):
Hz	-50.0	-50.0	-50.0	-50.0	-50.0	-50.0

Transmitting
Beams 2:

Question	Response
Beam ID	TX1L
Transmit Beam Frequency	12200.0 MHz -12700.0 MHz

Beam Type	Fixed
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.12 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-15.7 dBW/Hz
Max. Transmit EIRP	58.1 dBW
Co- or Cross Polar Mode	C
Service Area Description	CONUS and Puerto Rico

Max. Power Flux Density

	* 0° - 5°	* 5° - 10°	* 10° - 15°	* 15° - 20°	* 20° - 25°	* 25° - 90°
	(dBW/m ²	(dBW/m ²	(dBW/m ²	(dBW/m ²	(dBW/m ²	(dBW/m ²
BW:	/BW):	/BW):	/BW):	/BW):	/BW):	/BW):
Hz	-50.0	-50.0	-50.0	-50.0	-50.0	-50.0

Transmitting Beams 3:

Question	Response
Beam ID	TX2R
Transmit Beam Frequency	12200.0 MHz -12700.0 MHz
Beam Type	Fixed
Polarization	RHCP
Peak Gain	dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.12 degrees

Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-15.7 dBW/Hz
Max. Transmit EIRP	58.1 dBW
Co- or Cross Polar Mode	C
Service Area Description	CONUS and Puerto Rico

Max. Power Flux Density

	* 0° - 5°	* 5° - 10°	* 10° - 15°	* 15° - 20°	* 20° - 25°	* 25° - 90°
	(dBW/m ²	(dBW/m ²	(dBW/m ²	(dBW/m ²	(dBW/m ²	(dBW/m ²
	/BW):	/BW):	/BW):	/BW):	/BW):	/BW):
Hz	-50.0	-50.0	-50.0	-50.0	-50.0	-50.0

Transmitting Beams 4:

Question	Response
Beam ID	TX2L
Transmit Beam Frequency	12200.0 MHz -12700.0 MHz
Beam Type	Fixed
Polarization	LHCP
Peak Gain	dBi
Antenna Pointing Error	0.12 degrees
Antenna Rotational Error	0.12 degrees
Polarization Switchable	
Polarization Alignment Relative to the Equatorial Plane	45.0 degrees
Max. Transmit EIRP Density	-15.7 dBW/Hz
Max. Transmit EIRP	58.1 dBW

Co- or Cross Polar Mode	C
Service Area Description	CONUS and Puerto Rico

Max. Power Flux Density

	* 0° - 5°	* 5° - 10°	* 10° - 15°	* 15° - 20°	* 20° - 25°	* 25° - 90°
*	(dbW/m ²)	(dbW/m ²)	(dbW/m ²)	(dbW/m ²)	(dbW/m ²)	(dbW/m ²)
BW:	/BW:	/BW:	/BW:	/BW:	/BW:	/BW:
Hz	-50.0	-50.0	-50.0	-50.0	-50.0	-50.0

**Transmitting
Channels (32)**

Channel ID	Channel Bandwidth (MHz)	Center Frequency s (MHz)	Feeder Link, Service Link or TT&C
D32	24.0	12675.98	Service Link
D31	24.0	12661.4	Service Link
D30	24.0	12646.82	Service Link
D29	24.0	12632.24	Service Link
D28	24.0	12617.66	Service Link
D27	24.0	12603.08	Service Link
D26	24.0	12588.5	Service Link
D25	24.0	12573.92	Service Link
D24	24.0	12559.34	Service Link
D23	24.0	12544.76	Service Link
D22	24.0	12530.18	Service Link
D21	24.0	12515.6	Service Link
D20	24.0	12501.02	Service Link
D19	24.0	12486.44	Service Link
D18	24.0	12471.86	Service Link
D17	24.0	12457.28	Service Link
D01	24.0	12224.0	Service Link
D02	24.0	12238.58	Service Link
D03	24.0	12253.16	Service Link
D04	24.0	12267.74	Service Link
D05	24.0	12282.32	Service Link
D06	24.0	12296.9	Service Link
D07	24.0	12311.48	Service Link
D08	24.0	12326.06	Service Link

D09	24.0	12340.64	Service Link
D10	24.0	12355.22	Service Link
D11	24.0	12369.8	Service Link
D12	24.0	12384.38	Service Link
D13	24.0	12398.96	Service Link
D14	24.0	12413.54	Service Link
D15	24.0	12428.12	Service Link
D16	24.0	12442.7	Service Link

Certification Questions

Question	Response
Are the applicable service area coverage requirements of 25.143(b)(2) (ii) and (iii), or 25.144(a)(3)(i), or 25.145 (c)(1) and (2), or 25.146(i)(1) and (2), or 25.148(c), or 25.225 met?	N/A
Are the applicable frequency tolerances of 25.202(e) and out-of-band emission limits of 25.202(f)(1),(2), and (3) met?	Yes
Are the cessation of emissions requirements of 25.207 met?	Yes
Are the applicable power-flux-density limits of 25.208 met, and is the appropriate technical showing provided within the application?	
For NGSO applications, are the applicable equivalent-power-flux-density limits of 25.208 met, and is the appropriate technical showing provided within the application?	N/A
Are the applicable full-frequency-reuse requirements of 25.210 met?	Yes
If the application is for a 17/24 GHz BSS space station, will it be operated at an offset location with full power and interference protection in accordance with 25.262(b)?	

Attachments

File Name	Beam	Field	Attachment Type	Description
<u>ECHOSTAR-15 GIMSDB.mdb</u>		GSO Antenna Gain Contour Data	GIMS file (*.mdb)	ECHOSTAR-15 GIMS Database